APPENDIX B: DER's Tools to Evaluate Environmental Benefits of Culvert Replacements

Below are examples of online decision support tools DER will use as a part of the evaluation of environmental benefits for the proposed culvert replacement project. In addition to these tools, DER will use other planning and data resources and staff expertise to determine project benefits. **Applicants are not required to seek information about their culverts using the tools listed below. *This list is for informational purposes only*.** Towns may find these tools useful for prioritizing culvert replacements and internal decision-making purposes. ***Culverts that do not appear in these online decisions support tools are still eligible for funding.***

Coldwater Fisheries Resources (www.mass.gov/info-details/coldwater-fish-resources)

A Coldwater Fish Resource (CFR) is a stream, river, or tributary where coldwater fish, such as trout, live and reproduce. CFRs are particularly sensitive habitats. **Applicability: State-wide.**

NAACC Road-Stream Crossing Database (https://naacc.org)

Based on field surveys of culverts and bridges, the North Atlantic Aquatic Connectivity Collaborative (NAACC) ranks culverts based on the severity of the fish passage barrier created by the crossing (e.g., *No Barrier, Insignificant Barrier, Minor Barrier, Moderate Barrier, Significant Barrier, or Severe Barrier).* **Applicability: State-wide (Approximately 22% of culverts in Massachusetts are surveyed).**

Stream Crossings Explorer (See link above and Stream Crossing Explorer Quick Reference Guide below.)

The Stream Crossings Explorer conveys information related to environmental benefits of rivers and, where available, risk of failure of road-stream crossings and associated disruption of emergency services. This tool is an extension of the NAACC database. **Applicability: State-wide.**

Mapping Data (HTTPS://WWW.MASS.GOV/GET-A-MAP)

MassGIS provides geospatial mapping data for all of Massachusetts. Below are examples of map data DER may review as part of the grant review process: **Applicability: State-wide.**

Conservation

- Areas of Critical Environmental Concern
- Natural Heritage Data Estimated and Priority Habitats of Rare Wildlife
- Open Space

Images (Aerial Photos and Topographic Maps)

Infrastructure (Dams and Roads)

Physical Resources

- Anadromous Fish
- DFW Coldwater Fisheries Resources
- Hydrography Water Resources
- Outstanding Resource Waters
- Watershed Subbasins

Wild & Scenic Rivers (Available at www.rivers.gov)

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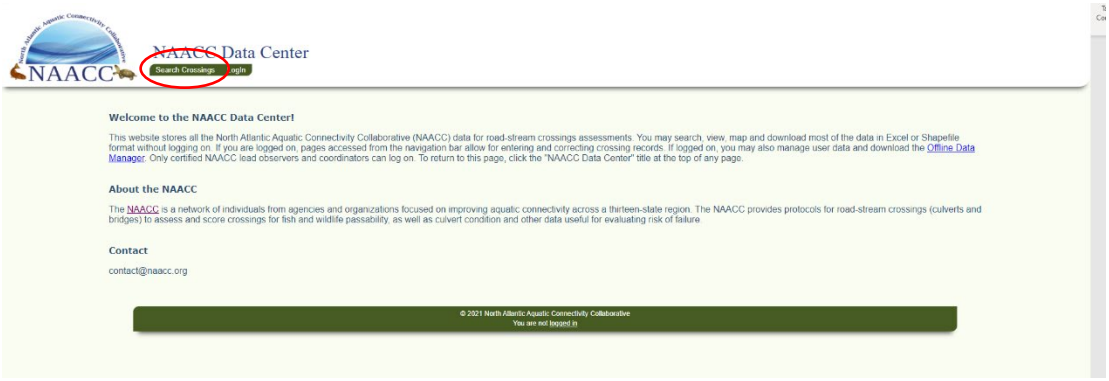
Stream Crossing Explorer Quick Reference Guide:

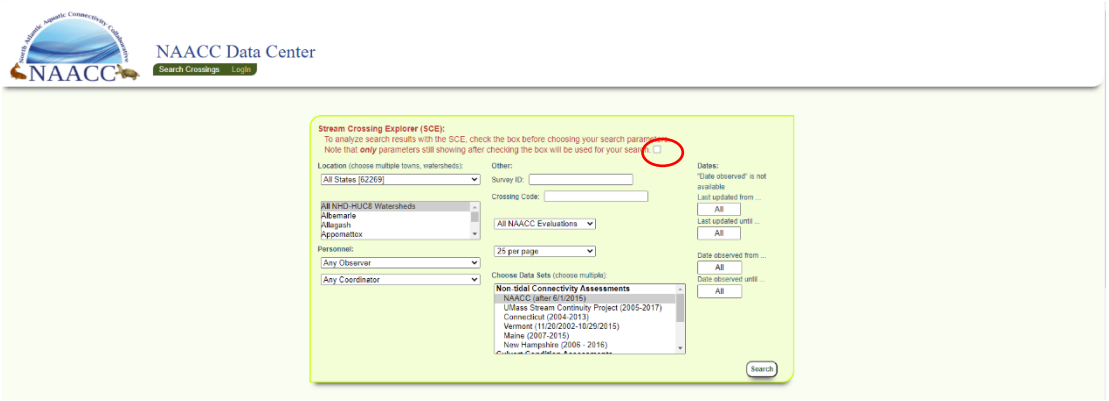
Outlined below are steps to access and display data in the Stream Crossing Explorer. The steps are intended to show users how to access data for a specific municipality and to display locations with the best opportunities to reconnect upstream and downstream habitat. Additional search parameters and data selection options are available to further refine and select areas of interest.

Step 1: Select "Search Crossing" at www.naacc.org

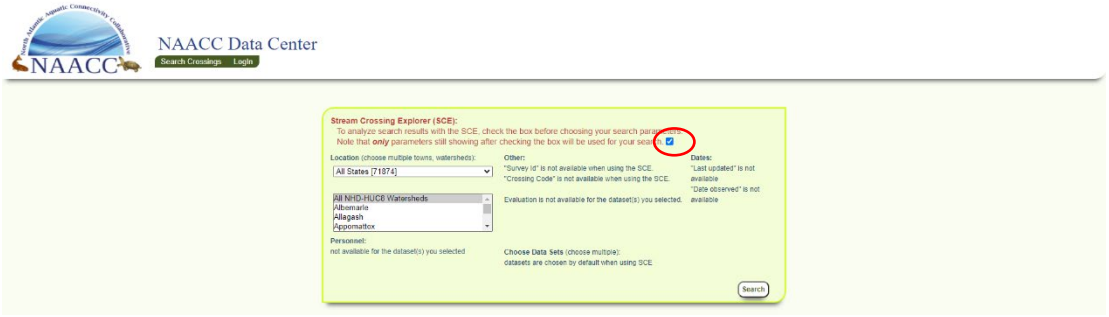


Step 2: Be sure to **click checkbox** to analyze results for Stream Crossing Explorer!

Box unchecked:



Box checked (Correct Search Box):



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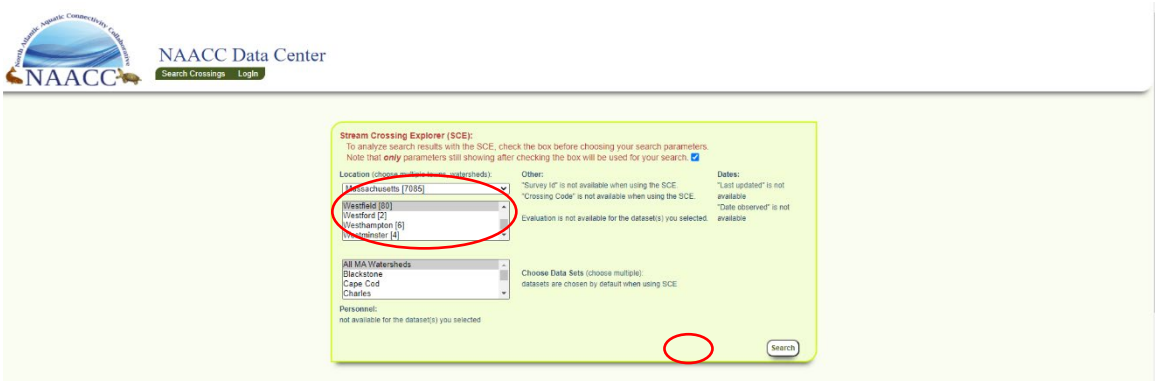
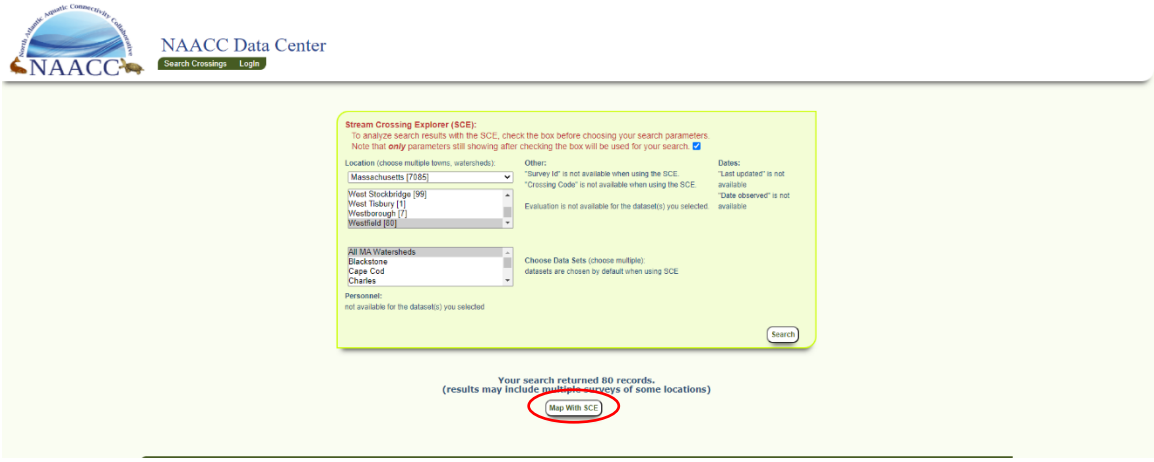
Step 3: Select "Massachusetts" under Location, then select the Town you want to search in.

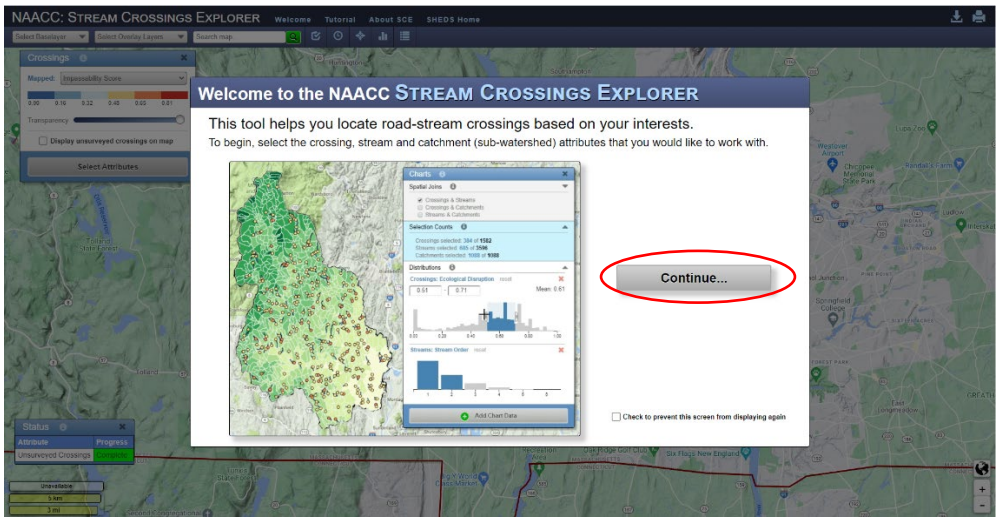
Then, click "Search"



Step 4: Click "Map With SCE."



Step 5: The map may open in a new window. Click through Tutorial Screens ("Continue", "Next" or "Skip").



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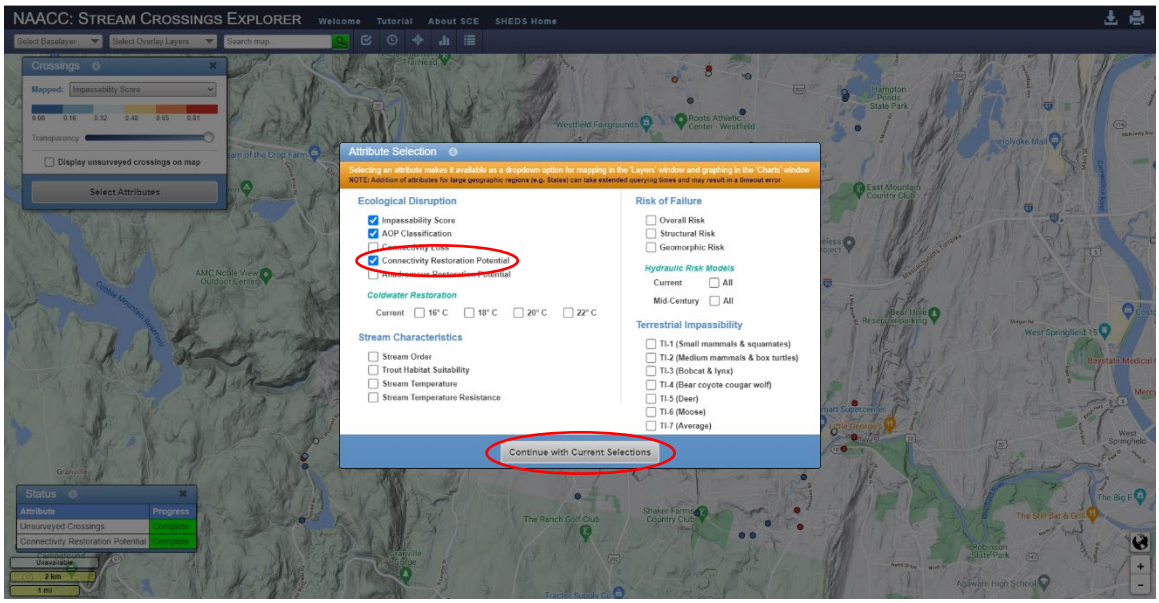
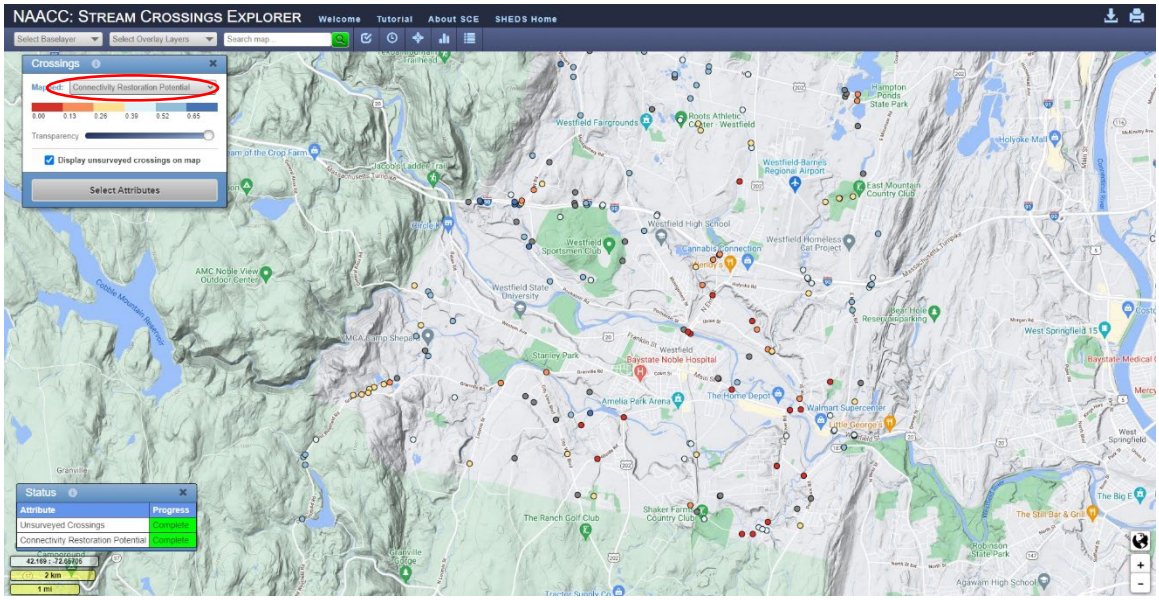
Step 6: Select the "Connectivity Restoration Potential" checkbox on the Attribute Selection table. You may want to unselect the pre-selected boxes (Impassability Score; AOP Classification) to reduce the amount of data displayed. Click "Continue with Current Selections."



Step 7: Be sure the Crossings Layer has "Connectivity Restoration Potential" selected from the drop-down menu next to "Mapped" and the box is check next to "Displayed unsurveyed crossings on map." This should display all the mapped stream crossings within your community.



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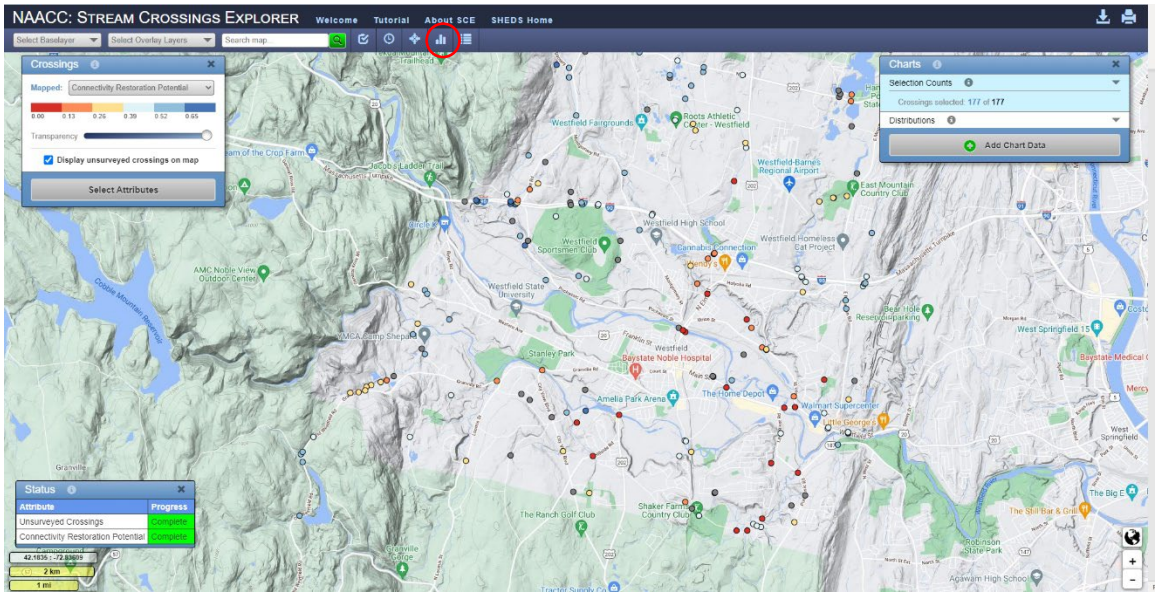
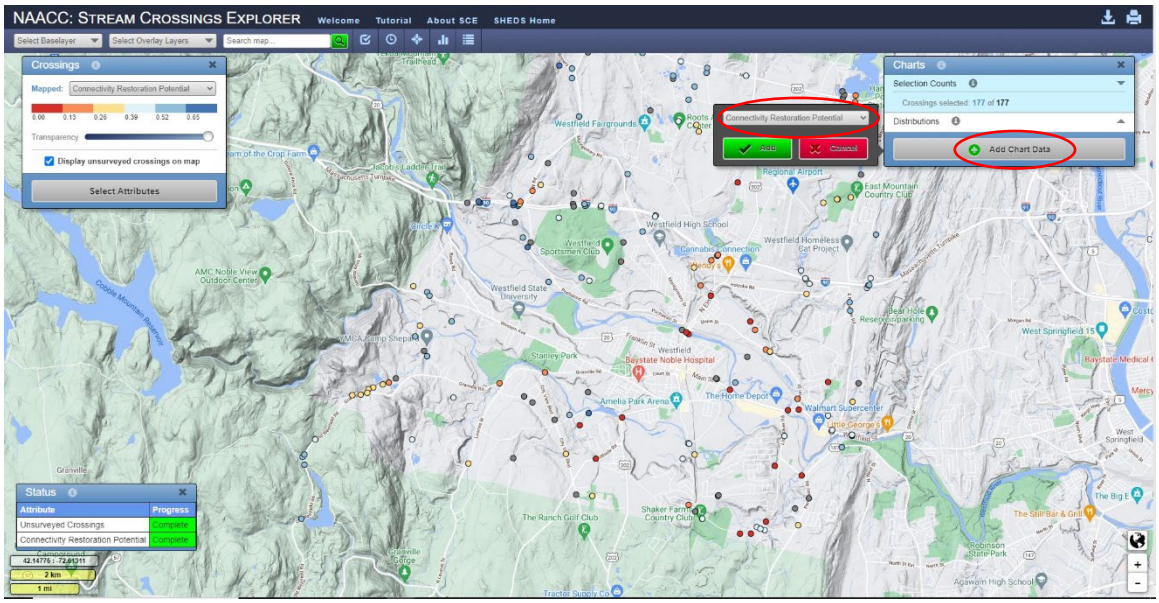
Step 8: Select the "Charts" icon on the website header.



Step 9: Click "Add Chart Data" and then select "Connectivity Restoration Potential" from the drop-down menu. Click "Add."



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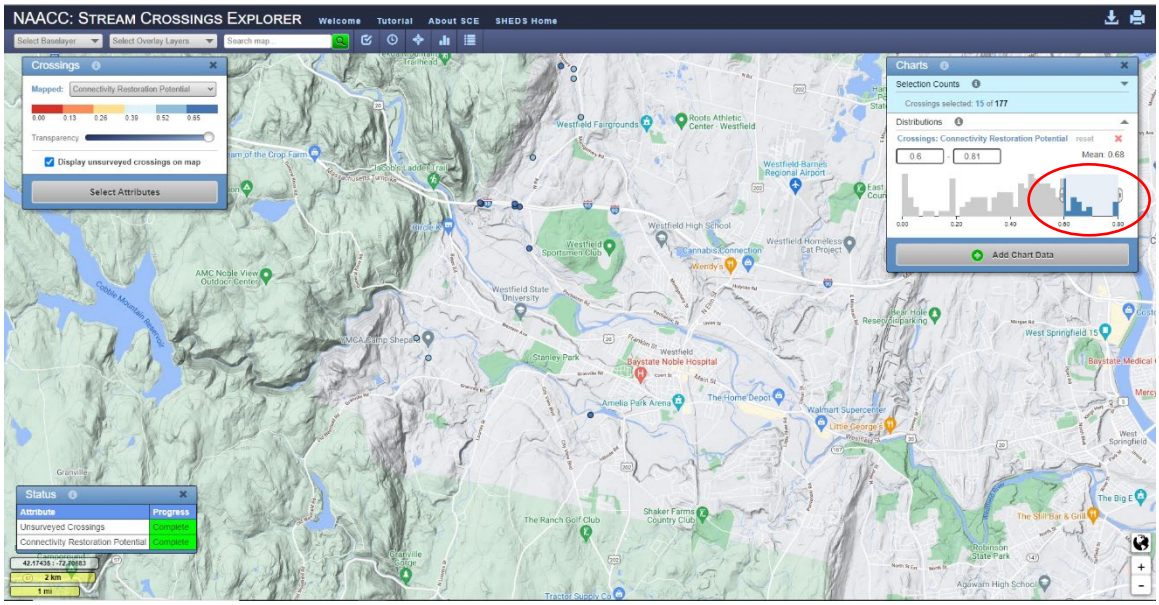
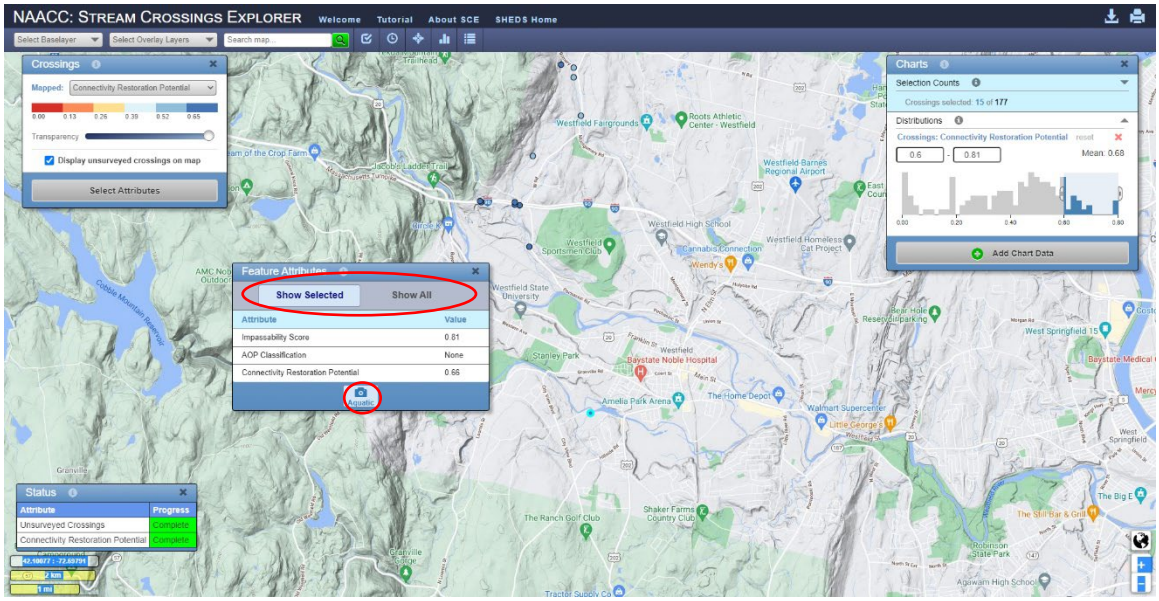
Step 10: All crossings within your town will be displayed in the map. Stream crossings with the highest potential for restoration will be at the higher end of the scale. You can adjust the view by adjusting the range in the chart box and/or clicking and holding down your cursor to adjust the range box. The number of crossings selected is displayed above the chart data and on the map.



Step 11: Select crossing of interest to view available data, e.g. the Connectivity Restoration Potential Score and photos. If you selected other attributes, you can click "Show All" to view the other attributes.



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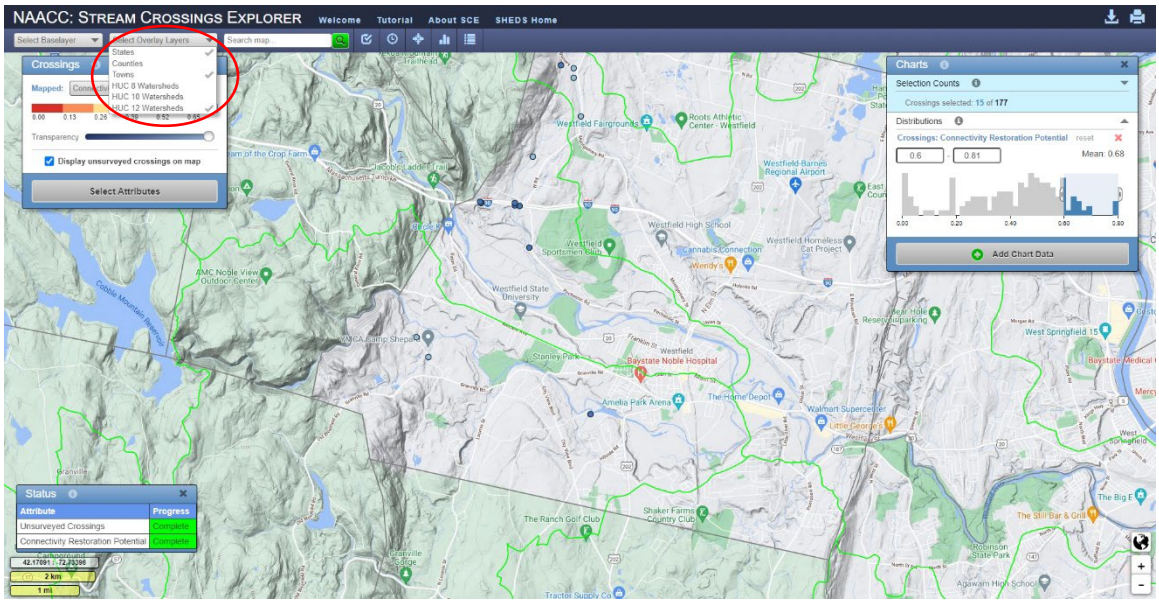
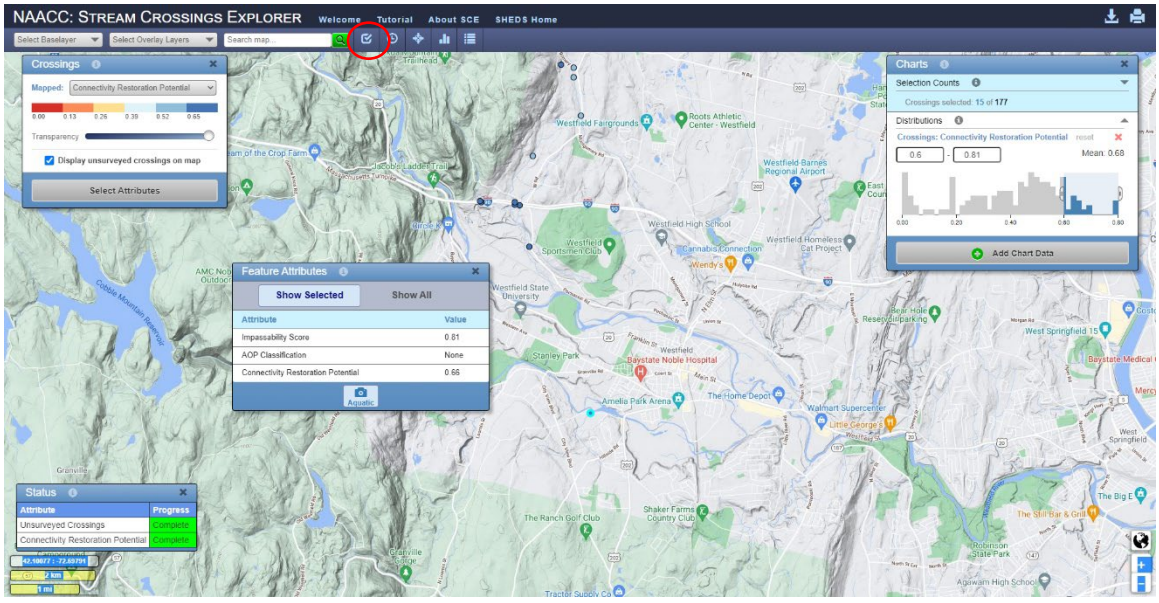
Optional: To add Town boundaries and/or HUC 12 Watershed Layer, you can select from the "Select Overlay Layers." You can also change the map baselayer under "Select Baselayer" drop-down menu.



Optional: You can add or remove other Attributes by clicking "Select Attributes."



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Optional: You can download the displayed data (as a .csv, shapefile or GeoJSON file) by selecting the download icon in the upper righthand corner.